



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

N

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/721,381

11/26/2003

Takayasu Yamamoto

Q78681

6006

23373

7590

06/17/2004

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

NGUYEN, SANG H

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/721,381	Applicant(s) YAMAMOTO ET AL.	
	Examiner sang nguyen	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/25/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

This office acknowledges of the following items from the Applicant: Information Disclosure Statement (IDS) file on 11/26/03 is received. The references cited on the PTOL 1449 form have been considered.

Claim Objections

Claims 1 and 6 are objected to because of the following informalities: the "A" in line 1 of claims 1 and 6 should change to --An--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miura et al (U.S. Patent No. 6,549,290) in view of Saeki (U.S. Patent No. 5,740,034).

Regarding claims 1, 3, and 6; Saeki discloses an inspecting device for inspecting a semiconductor wafer, comprising:

Art Unit: 2877

- a holding unit (27 of figure 5) for holding a wafer (21 of figure 5);
- an observing unit considered to be an optical instrument/ a wafer inspection microscope (col.4 lines 5-10 and 26-30) having an AF autofocusing (42 of figure 1), an objective lens (41 of figure 1 or figure 4) for magnifying and observing fine patterns (A and B of figures 7, 9, and 12A-12C) on the wafer (21 of figure 5), wherein the observing unit (41, 42 of figure 1 or 40 of figure 5) disposed at a position where the wafer (2 of figure 1 or 21 of figure 5) held by the holding unit (27 of figure 5) can be observed;
- a moving unit (24, 23, 22 of figure 4-5) which relatively moves the holding unit (27 of figure 5) with respect to the observing unit (118 of figure 1 or figure 4); and
- a control unit (37 of figure 5) for controlling the moving unit (22, 23, 24 of figure 5) to move the holding unit (27 of figure 5) based on obtained position data (figure 6) so that the fine patterns (figure 7) at a desired position can be observed. See figures 1-15.

Miura et al teaches all of features of claimed invention except for the moving unit having a rotating unit which relatively rotates the holding unit with respect to an aligner unit and control unit controls the rotating unit to rotating the holding unit at every predetermined angle and the aligner unit detects the cutout position or notch and the center position by obtaining distances from a rotational angle. However, Saeki teaches that it is known in the art to provide the moving unit (32 of figure 4) having a rotating unit (40, 36 of figure 4) which relatively rotates the holding unit (42 of figure 4) with respect

Art Unit: 2877

to an aligner unit considered to be a detection means (34 of figure 4) and control unit (58 of figure 4) controls the rotating unit (40, 36 of figure 4) to rotating the holding unit (42 of figure 2) at every predetermined angle (figure 10 from 0 degree to 360 degrees) and the aligner unit (34 of figure 4) detects the cutout position or notch (WN of figure 3) and the center position (OW of figure 3) of wafer (W of figure 3) by obtaining distances from a rotational angle (figures 14-17). See figures 1-22.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify inspecting device for inspecting a semiconductor wafer of Miura et al with the moving unit having a rotating unit which relatively rotates the holding unit with respect to the aligner unit and control unit controls the rotating unit to rotating the holding unit at every predetermined angle and the aligner unit detects the cutout position or notch and the center position by obtaining distances from a rotational angle as taught by Saeki for the purpose of detecting notch or orientation flat of the wafer.

Regarding claim 2; Miura et al teaches that the moving unit (22, 23, 24 of figure 5) having a rotating unit (25, 26 of figure 5) relatively rotates the holding unit (27 of figure 5) and a horizontally moving unit (24 of figure 5) for moving the holding unit (27 of figure 5) with respect to the observing unit (118 of figure 1 or figure 5) in a substantially horizontally direction (24 of figure 5).

Regarding claims 4-5; Miura et al discloses the observing unit considered to be a wafer inspection microscope (col.4 lines 5-10) having a photograph unit considered to be an autofocus unit nit (40 of figure 5), an objective lens (36 of figure 5) for

Art Unit: 2877

magnifying an image of the fine pattern of the wafer (21 of figure 5) and a lens barrel (118 of figure 1) having an eyepiece (col.4 lines 26-30), and the control unit (12 of figure 1) is coupled to a photograph unit considered to be an autofocus unit (40 of figure 1) for controlling the moving unit (22, 23, 24 of figure 5) to move the holding unit (27 of figure 5 or 1 of figure 1) based on the image captured by the autofocus unit (40 of figure 1) and a computer considered to be an edge detecting circuit (39 of figure 5) coupled to operation circuit (38 of figure 5) for determining proper image of the wafer based on the image capture by the autofocus unit (40 of figure 5).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Murata (6399957) discloses method and apparatus for inspection appearance of objects; Miura (6201603) discloses position detection apparatus for semiconductor wafer; Okawa et al (5851102) discloses device and method for positioning a notch wafer; Akamatsu (56258823) discloses alignment system; Aoyama et al (5194743) discloses device for positioning circular semiconductor wafers; or Nakazato et al (4887904) discloses device for positioning a semiconductor wafer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Nguyen whose telephone number is (571) 272-2425. The examiner can normally be reached on 9:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Art Unit: 2877

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sang Nguyen/SN

Jun 9, 2004



Frank G. Font
Supervisory Patent Examiner
Art Unit 2877
Technology Center 2800